PURCHASE DESCRIPTION

SYNTHESIZED SIGNAL GENERATOR (1MHZ TO 1.3 GHZ)
**FSNSD-A**

1.0 GENERAL This procurement requires a programmable synthesized signal generator employing no more then two RF and two modulation plug-ins, covering a frequency range of 1 MHz to 1.3 Ghz with external AM and external Pulse Modulation.

2.0 CLASSIFICATION The synthesized signal generator describe herein shall meet the requirements of MIL-T-28800(), Type III, Class 5, Style E, Color R for the Navy shipboard, submarine, and shore applications with the following exceptions:

a. The non-operating temperature requirement is limited to the range of -40°C to +70°C.

b. The relative humidity requirement is limited to 95% noncondensating.

c. The operating and non-operating altitude requirements are not invoked.

d. The EMI requirement is limited to CE01, CE03, CS01, CS02 (.05-100 Mhz), CS06, RE02 (14 KHz-1Ghz), and RS03.

e. The warm-up time is extended to 72 hours.

3.0 OPERATIONAL REQUIREMENTS The equipment shall be capable of generating signals within the parameters and accuracies specified herein.

3.1 Frequency Characteristics {F = carrier frequency}.

3.1.1 Frequency Range: At least 1 MHz to 1.3 Ghz.

3.1.2 Frequency Resolution: 1 Hz.

3.1.3 Frequency Stability

3.1.3.1 Internal: At least $\pm 3 \times 10^{-9}$/day.
3.1.3.2 External: Equal to external standard frequency stability.

3.1.4 Spectral Purity

3.1.4.1 Harmonics/Sub-harmonics: ≤-30 dBc.
3.1.4.2 Non-Harmonics/Spurious: At least -50 dBc.
3.1.4.3 Single Sideband Phase Noise: Less than -100 dBc/Hz at 10 KHz offset.

3.1.5 Reference Frequency

3.1.5.1 Internal Reference Oscillator: 10 MHz.
3.1.5.2 External Reference Oscillator: 5 or 10 MHz, 0.5 to 2.0 Vrms into 170 ohms.

3.2 Output Characteristics

3.2.1 Range: +10 to -146 dBm.

3.2.2 Accuracy: ±1.5 dB to -76 dBm, ±2.0 dB to -146 dBm.

3.2.3 Flatness: <±1.0 dB.

3.2.4 Digital Sweep: Auto, single, or manual operation with selectable speeds 0.1, 1.0 or 50 seconds.

3.3 Modulation Characteristics

3.3.1 Amplitude Modulation (AM)

3.3.1.1 Internal AM (none)

3.3.1.2 External AM

3.3.1.2.1 Rate: At least 0 to 5 KHz ±< 10 MHz, 20 Hz to 50 KHz ≥ 10 MHz.
3.3.1.2.2 Depth: At least 0 to 90%.
3.3.1.2.3 Accuracy: ±10% full scale.
3.3.1.2.4 Distortion: Less than 5% at 50% depth and 1 KHz rate.
3.3.1.2.5 Input impedance: 600 ohms.

3.3.2 Pulse Modulation

3.3.2.1 Internal Pulse Modulation (none)

3.3.2.2 External Pulse Modulation

3.3.2.2.1 Input Impedance: 50 ohms.
3.3.2.2.2 Pulse Rise/Fall Time: 50ns
3.3.2.2.3 ON/OFF Ratio: >40 dB.

## 4.0 GENERAL REQUIREMENTS

4.1 Power: 15/230 vac ±10%, single phase, 50, 60 or 400 Hz ±10%, 350 watts maximum.

4.2 Calibration Interval: The calibration interval shall be 12 months minimum. The equipment shall be within all accuracy requirements specified herein, with a 72% or greater confidence factor following a calibration interval of 12 months.

4.3 Dimensions: The total volume of the unit shall not exceed 2828 $in^3$ (46,342 $cm^3$) with a maximum height of 7.25 in.

4.4 Weight: The total weight of the unit shall not exceed 66 lbs. (20 kg).

4.5 Remote Programming: The generator shall be capable of being remotely controlled via the IEEE-488 interface bus, operating as both a talker and listener, having at least the following subset of bus functions: AH1, L4, SH1, T6, SR1, DC1, and RL1.